Bonn. zool. Beitr.
33 (1982), Heft 2–4

On the robins *Cossypha dichroa* and *C. natalensis* (Aves: Turdidae) in southern Africa

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The taxa comprising the species pair to be considered were both described from the Republic of South Africa, the larger of the two, *C. dichroa* (Gmelin), 1789, being a South African Sub-Region endemic with a range from the south-west of the Cape to the northern Transvaal. The second species, *C. natalensis,* which was introduced to science in 1840 by Dr. Andrew Smith, has a wide if disjunct Afrotropical range, reaching its southern extremity in the eastern Cape, the Transkei and Natal. Apart from the marked size difference, *C. natalensis* differs from its congener in having the pileum reddish brown, and the hind and side surface of the neck reddish brown or olivaceous rufous, this extended down the centre of the otherwise bluish grey back in the form of a narrow streak to link up with the concolorous rump, and the face orange as opposed to black in *dichroa*.

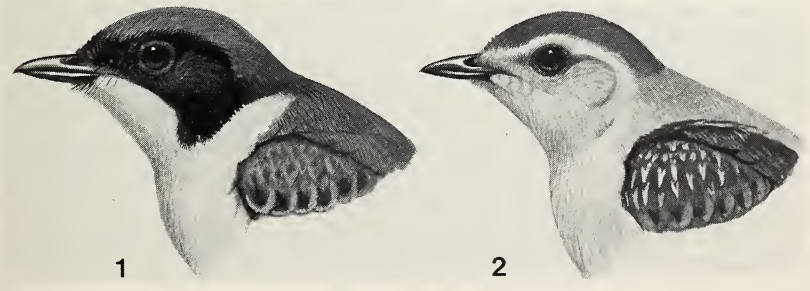

Fig. 1. Heads of two southern African *Cossypha* species to show starkly different patterns. — 1. *Cossypha dichroa* (Gmelin), 2. *Cossypha natalensis* Smith.

Throughout much of its limited range, the distribution of the forest-dwelling *C. dichroa* is vicinal with that of the southern populations of *C. natalensis,* the two species being separated while breeding along altitudinal and ecological lines. Only in the case of the terminal population of *C. natalensis,* occurring in the eastern Cape and southern Transkei, are the species marginally sympatric. In the said region the Natal Robin is present at sealevel in dune bush and riverine scrub, whereas its congener, *dichroa,* breeds in evergreen forest from sealevel to in excess of 1550 m. a. s. l. in fragmented interior mist forest. In the eastern Cape and Transkei the effect of direct competition between the species is probably of only seasonal importance, because while *C. dichroa* is a resident of closed forest and the denser stands of coastal evergreen bush, with only limited post-breeding movement on the part of first-year birds, the bulk of the population of *C. natalensis* is only present during the breeding season (late September–February). Shortly thereafter most birds move up the coast to spend the off-season on the littoral flats of Natal and Zululand and southern Mozambique.

Hall & Moreau (1970) were the first workers to allude to the possible close relationships of these two robins, mapping the ranges of both on a single plate, but contributing little in substantiation of their action beyond stating that *C. dichroa* is "clearly closely related to *natalensis*." That the two species are in fact more closely related than suspected from their southern distribution patterns, was suggested by results of work on subspeciation in the South African Sub-Region breeding populations of the Natal Robin *C. natalensis* recently carried out in the Durban Museum.

During a bird collecting expedition to Mozambique in September, 1955, four specimens of *C. natalensis* were taken in a densely populated area of coastal bushveld to the north of Lourenco Marques (now Maputo) at Manhiça. On comparing these specimens at the Durban Museum it was found that the sample was subspecifically distinguishable from breeders from the Durban district of Natal, these latter topotypical of the nominate race of *C. natalensis,* initially discovered at Durban in the year 1832 when Dr. Andrew Smith passed through the district on his political journey to the court of the Zulu king, Dingaan.

The skins comprising the Manhiça sample were found to be darker over the pileum, less reddish over the hind neck and on the mid-dorsal streak, and the entire venter in both male and female specimens was markedly less richly orange coloured than in the case of the nominate subspecies from Natal. At the time, the taxon, *C. n. egregior* Clancey, was described (Clancey, 1956), it was believed that the sample from Manhiça represented an indigenous subspecies of the littoral plain of southern Mozambique. However, efforts made during several subsequent expeditions to the coastal plain of southern Mozambique failed to provide further examples of *C. n. egregior,* the breeding range of which is currently highly equivocal. On the recent re-

ceipt of the T. B. Oatley collection of African robins by the Durban Museum, the opportunity was taken to re-examine the geographical variation exhibited by *Cossypha natalensis* in southern Africa, and, particularly, to try and determine the breeding grounds of *C. n. egregior*.

While engaged on the research it was noted that several specimens, mainly young birds, in the Durban Museum collection taken along the Natal coast over the years were not taxonomically separable from the original series of four specimens of *egregior*. The finding of *egregior*-like specimens along the Natal and southern Zululand coast, and at the type-locality, suggested two possible explanations as to the provenience of *egregior:* (a) that the subspecies was a strong migrant from a distant breeding ground which remained to be discovered, or, (b) was an invalid taxon based on insolated and worn material of a population or populations of *C. n. natalensis* breeding in a relatively dry habitat and not evergreen or riparian forest. However, the chain of records of *egregior*-like specimens along the Natal and southern Zululand littoral, several taken at the time the local population of the nominate race of *C. natalensis* is breeding, was such as to suggest that *C. n. egregior* might be the form endemic to the southern aspects of the Transkei and the littoral of the eastern Cape Province. Specimens in the Durban Museum collection showed that *C. n. natalensis* bred south as far as the Umtamvuna R. on the border between Natal and the Transkei and still slightly further south to the next major stream, the Muanza R. Specimens of the two robin species here under consideration from still further south in the Transkei and in the Durban collection were taken in evergreen forest at sea or near sea-level and are all *C. dichroa.* From this it was assumed that *C. natalensis* extended no further south than the country between the Umtamvuna and Muanza Rivers, its place slightly further south as well as in the high interior being taken by the more stenotopic *C. dichroa.* It was appreciated at the time that there were records of Natal Robins from the Cape coast as far south as East London at 33° 00' S., 27° 54' E., but it was believed that these probably were of non-breeders from regions to the north-east. In dealing with the status of *C. natalensis* in the Eastern Cape, which at the time of writing included the now independent territory of Transkei, Skead (1967) records it only from the "dune forest down to Kayser's Beach, East London district." He goes on to state that a record from Grahamstown is open to doubt, but unfortunately, the possible limits of the species to the north of East London were not indicated by Skead.

Examination of the short series of eastern Cape and Transkei *C. natalensis* in the collection of the East London Museum, while rather limited, revealed much of moment concerning the probable breeding grounds of *C. n. egregior* and the relationship of the species *natalensis* and *dichroa.* Specimens of relevance to the present study in the East London Museum collection are enumerated in Table 1 below.

Table 1

1.	♂ 1st y.	Leache's Bay, East London dist.	13 March, 1968.
2.	♀ 1st y.	Gonubie, East London dist.	17 October, 1968.
3.	♂ 1st y.	Bulugha mouth, East London dist.	30 April, 1969.
4.	♂ ad.	Christmas Rock, East London dist.	11 March, 1971.
5.	♂ 1st y.	Xora R. mouth, Transkei.	16 June, 1967.
6.	♂ 1st y.	Xora R. mouth, Transkei.	16 June, 1967.
7.	♂ 1st y.	Xora R. mouth, Transkei.	16 June, 1967.
8.	♂ 1st y.	Lwandile, Ngqeleni, Transkei.	9 June, 1969.

Notes: (a) Specimen No. 3, from Bulugha, has a darker head than usual in *C. n. egregior,* the dorsal stripe is vestigial, and the scapulars and mantle uniform leaden grey suggesting, prima facie, the influence of *dichroa;* (b) specimen 4 has the wing 101 (worn) and tail 86, versus wings 88–93 mm in other eastern Cape *natalensis.* The pileum is dark greyish, there is a limited amount of buffish orange across the hind neck, but there is no dorsal stripe, the mantle and scapulars being unbroken slate-grey. The long wing-length and plumage anomalies listed indicate that the specimen is a *C. natalensis* × *C. dichroa* hybrid; (c) specimen 8 from Ngqeleni, Transkei, is a specimen of *C. n. hylophona* and clearly a wintering bird.

Table 1 reveals a rather unusual state of affairs in that in the sample of eight specimens collected by East London Museum personnel over the years in the Cape and Transkei only one is an adult and that the *C. natalensis* × *C. dichroa* cross taken on 11 March, 1971, all the others being first year birds. The fact that no less than three first year males were all taken on the same day in June, 1967, suggests a movement of these robins was taking place at that time. Mr C. D. Quickelberge, the former Ornithologist of the aforesaid museum and now on the staff of the Durban Museum, informs me that there is a substantial population of *C. natalensis* in the matted dune bush along the Cape coast in the vicinity of East London during the breeding season, and that in a morning's field work in the bush he could count on seeing three or four. The coast forest at Bulugha at 32°53' S., 28°07' E., was one of the best localities for the species, its congener, *C. dichroa,* being absent.

While the limited data are at first sight confusing, the following rationale to the situation is suggested by them: that a reasonably large population of Natal Robins actually breeds in the eastern Cape and the southern Transkei, the majority arriving to breed in association with the main rains in October from further up the south-east African coast, the adults apparently leaving the Cape and Transkei by March, birds present through the southern winter months (c. April–September) being in first year dress or migrants from elsewhere.

Natal robins believed to be of Cape and Transkei origin occur along the adjacent coast of Natal, southern Zululand and southern Mozambique almost throughout the year. Of ten in the Durban Museum selected at random, one is dated January, one February, one March, four April, one August,

one October and one November. Compared with specimens of the populations which actually breed in this latter coastal area of south-eastern Africa (*C. n. natalensis*), such birds are in the case of adult males darker over the pileum, more olivaceous, less red, over the hind neck and dorsal streak and are yellower, less fiery orange below, the forethroat and abdomen much paler. The females show a similar range of differences, but these perhaps better marked than in the males. Comparisons carried out show that the eastern Cape and Transkei breeding population of *C. natalensis* is *C. n. egregior,* which spends the non-breeding season along the Natal and Zululand coast to the lowlands of southern Mozambique. The taxon was clearly based on such migrants, and statements in the current literature to the effect that *egregior* is a race of the coastal lowlands of Mozambique are incorrect (see Clancey, 1966; Clancey Ed., 1980). Immature birds seem not to return to the breeding grounds, occurring alongside *C. n. natalensis* while this form is nesting.

Comparing all the material of *C. n. natalensis* and *C. n. egregior* available in southern African museums enables me to revise the characters and ranges of the three South African Sub-Region subspecies as follows:

(a) *Cossypha natalensis natalensis* Smith, 1840: Durban, Natal.
Crown about Argus Brown (Ridgway, 1912); hind neck and dorsal streak Sudan Brown; scapulars and lateral mantle Slate Color. Ventrally, deep Mars Yellow, reddening over the breast.
Range: Breeds from about the Transkei/Natal border below c. 300 m. alt. to the lowlands of Zululand, eastern Swaziland (Lebombo Mts), eastern and north-eastern Transvaal, Mozambique south of the Limpopo, and, apparently, in the Chirinda Forest, in eastern Zimbabwe. There is a marked northward movement on the part of a major portion of the southern population in late March and April, and a return one in September and early October.

(b) *Cossypha natalensis egregior* Clancey, 1956: Manhiça, southern Mozambique.
Compared with the last subspecies pileum near Raw Umber, and hind neck and dorsal streak duller Sudan Brown. Lateral dorsal slate colour paler. Below, lighter and yellower, less bright orange (pale Raw Sienna), and throat and belly much paler.
Range: Breeds along the coast of the eastern Cape from the southern aspects of the East London district to the coast of the Transkei. The majority spends the off-season on the Natal and Zululand coast, north to southern Mozambique.

The third southern African subspecies, which has not hitherto been considered here, is

(c) *Cossypha natalensis hylophona* Clancey, 1952: Chinteche, Malawi.

Both sexes lighter and more reddish over the pileum (about light Amber Brown) than in nominate *natalensis* ; hind and sides of neck and upper mantle more orange and forming a pronounced V over the last named surface. Slate of lateral mantle and scapulars reduced in extent and paler in tone. Tail shorter, particularly in adult males.
Range: Breeds in the frontier highlands between Zimbabwe and Mozambique, extending to Mt Gorongosa in Manicaland, and north to Malawi (north to about 11° S. and below 1525 m. a.s.l.), extending westwards in the mid-Zambesi drainage to the western aspects of Lake Kariba and the lower Kafue R. in Zambia. Spends the off-season at low elevations and along the eastern littoral.

The four or so other subspecies of *C. natalensis* are equatorial in distribution, and need not be discussed here.

Table 2. Wing- and tail-lengths of South African Sub-Region *Cossypha dichroa* (Gmelin) and *Cossypha natalensis* Smith, in mm.

	Wings				Tails			
	n	Range	$\bar{x}$	SD	n	Range	$\bar{x}$	SD
Cossypha dichroa								
C. d. dichroa								
♂	15	101–107	102.8	1.87	16	82.5–89.5	86.2	2.61
♀	12	95–101	98.12	2.07	12	80–84	82.0	1.23
C. d. mimica								
♂	13	95–100	98.2	1.38	13	75–80	77.5	1.73
♀	2	91, 95	93.0	2.83	2	74, 74.5	74.2	0.35
Cossypha natalensis								
C. n. natalensis								
♂	12	92–96.5	93.7	1.27	12	75.5–83	77.5	1.99
♀	12	85–89	86.7	1.50	12	66–72	69.7	1.83
C. n. egregior								
♂	10	88–92	90.4	1.79	10	72.5–76.5	74.4	1.64
♀	10	83–88.5	86.0	2.20	10	67.5–70	68.9	1.07
C. n. hylophona								
♂	12	91–94	92.4	1.06	12	70–75.5	73.0	1.59
♀	12	83–90	86.2	2.37	12	64–71	67.2	1.96

Wings flattened and straightened against a buffered ruler. Tails measured from the bifurcation of the innermost rectrices to their tips, i.e., to the tips of the black central tail-feathers.

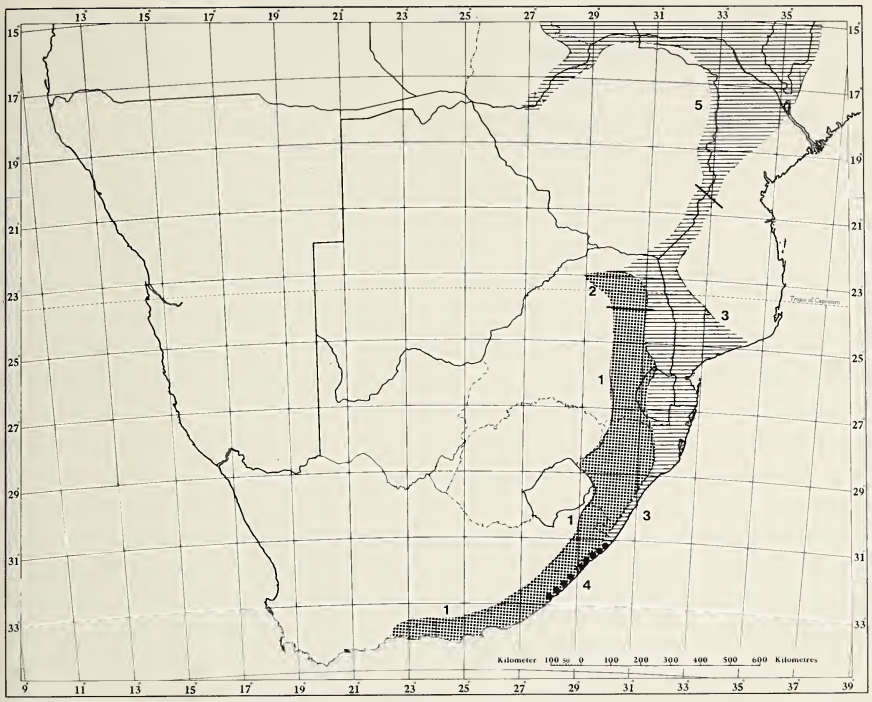

Fig. 2. Sketch-map showing the disposition of the robins *Cossypha dichroa* (Gmelin) and *Cossypha natalensis* Smith in southern Africa. — 1. *C. dichroa dichroa* (Gmelin), 2. *C. dichroa mimica* Clancey, 3. *C. natalensis natalensis* Smith, 4. *C. natalensis egregior* Clancey and *C. n. egregior* × *C. d. dichroa,* 5. *C. natalensis hylophona* Clancey. — Shaded areas represent the breeding ranges as far as can be determined.

The relationship of *C. dichroa* and *C. natalensis*

As already stated, Hall & Moreau considered the two Cossyphas to be closely allied, but advanced no evidence in support of such a contention. However, distribution maps and data on their ecology confirm that the species' breeding ranges scarcely overlap, except on a rather limited basis from the coast of eastern Pondoland, Transkei, south to Christmas Rock, to the south of East London, in the eastern Cape, where *C. dichroa* breeds at sea level, and *C. natalensis*, breeding as it does in the restricted habitat of bush on coastal dunes, reaches the terminus of its range. Here the two robins occur together, though there is probably an ecological separation when they breed: *C. dichroa* in stands of true forest or matted evergreen bush, and *C. natalensis* on sandy coastal dunes. With the virtual disappearance of dune habitat to the south of the East London district, *C. natalensis* is presumably unable, faced as it is with the additional constraint of competi-

tion from its larger congener (*C. dichroa*), to extend any further south. On the other hand, *C. dichroa* occurs numerously in versant and coastal forest as far south and west as the Mossel Bay district, at 34° 12' S.,19° 17' E.

To revert to the terminal population of *C. natalensis*, which occurs convergently and allopatrically alongside the dominant *C. dichroa*, evidence now available shows that in this region the two species hybridize to a greater or lesser degree. In Table 1 above I have already described a hybrid taken at Christmas Rock, to the south of East London, in 1971, and have described a further specimen from Bulugha, which while clearly *natalensis* shows a trend towards *dichroa* in the very dark greying to the pileum and the increase of slate over the mid-dorsum. Years ago, Gunning (1909) described what he believed to be a new species of *Cossypha* from Ngqeleni as *C. haagneri*. A colour plate of this form, executed by C.G. Davies, shows a *natalensis*-like bird with the head-top, nape and mantle unbroken slate-grey, the hind neck with a greenish wash. The female specimen was obtained on 2 August, 1908, by H.H. Swinny, but the taxon's status seems never to have been resolved, though Quickelberge did incorrectly use the name for a proposed subspecies of *C. dichroa* (Quickelberge, 1966). *C. haagneri* is clearly based on a hybrid between *C. natalensis* and *C. dichroa,* with wing 94 and tail 91, which agree with the dimensions provided by a long series of ♂ *C. dichroa.* A third hybrid, again from Ngqeleni, is a skin in the series of *C. dichroa* in the collection of the Transvaal Museum. This specimen is also one of Swinny's series taken in the early years of the present century at Ngqeleni. In this hybrid the general facies is that of *dichroa*, but with the face invaded by rusty buff, this forming a broad superciliary streak.

As far as the available specimen coverage of *C. dichroa* and *C. natalensis* goes these two robins do not hybridize in other parts of South Africa where they breed in a state of ecological and altitudinal contiguity, and that they only do so in a relatively limited area where the terrain funnels and compresses the available and interdigitated habitats into a narrow coastal strip, i. e., in the Transkei and eastern Cape.

Notwithstanding the now established fact that *C. dichroa* and *C. natalensis* are indeed extremely closely allied, as vouchsafed by Hall & Moreau (1970), there appears to be no question of considering the taxa conspecific. At this stage there is no information on which to determine if *C. dichroa* × *C. natalensis* are infertile, but on the basis of the limited nature of the zone of hybridization and the small number of known hybrid specimens it is desirable to continue to treat the two robins as good species.

It is worthwhile here mentioning that to the north of the range of *C. dichroa* in the north of the Transvaal its forest niche in the Eastern Highlands of Zimbabwe and adjacent Mozambique is taken over by the Natal Robin subspecies, *C. n. hylophona*.

Irwin & Clancey (1974), in their paper on the generic groupings of Afrotropical forest-dwelling robins, admit some eleven species as belonging to the genus *Cossypha* Vigors, 1825, the type-species of which is *C. dichroa*. As far as can be determined, no other instance of hybridization between *Cossypha* spp. is on record. Occasional hybridization is, however, conceivable in parts of East Africa where *C. heuglini* Hartlaub, 1866, and *C. semirufa* (Rüppell), 1840, are sympatric to a greater or less degree. *C. heuglini* and *C. semirufa* are of very similar facies, but the latter is on the whole a smaller species, and is more a denizen of forest edge than *C. heuglini,* which favours thickets, tangles and garden shrubbery. Due to habitat alteration, particularly in Kenya, one could expect the species to hybridize on occasion, despite their very different vocalisation, but the occurrence of this is so far not reflected in the literature (see Britton Ed., 1980).

Acknowledgments

For the loan of material of the two robins dealt with in the above communication I am grateful to the following museums: East London Museum (Mr. C. J. Vernon), Transvaal Museum (Dr. A. C. Kemp), and the National Museum of Zimbabwe, Bulawayo (Mr. M. P. Stuart Irwin). Mr. T. B. Oatley's collection of Afrotropical robins recently presented to the Durban Museum proved invaluable in the present research.

Summary

A re-examination of much of the material of the two Afrotropical robins of the Genus *Cossypha*, *C. dichroa* and *C. natalensis*, held in southern African museums has shown that the Natal Robin *C. natalensis* subspecies named *C. n. egregior* in 1956 is not a race of the Mozambique littoral as currently believed, but is a migrant breeding in the coastal regions of the eastern Cape and the southern Transkei. Its non-breeding range is now seen to include coastal Natal and Zululand.

The research further revealed that Hall & Moreau were correct when they treated *C. dichroa* and *C. natalensis* as closely related species in "An Atlas of Speciation in African Passerine Birds", 1970, map 150. It has been established that where the respective ranges of the two *Cossypha* spp. become tightly compressed by topographical and ecological agencies a measure of hybridization occurs, four hybrid specimens from Pondoland, in the Transkei, and the East London district of the Cape being known. Despite these findings, it is recommended that *C. dichroa* (1789) and *C. natalensis* (1840) should continue to be treated as discrete species, as there is no evidence from the assembled data that they hybridize elsewhere.

Zusammenfassung

Erneute Untersuchung eines großen Teiles des in Museen des südlichen Afrika vorhandenen Materials der zwei afrotropischen Rötel-Arten *Cossypha dichroa* (Gmelin, 1789) und *C. natalensis* Smith, 1840, ergab, daß die 1956 benannte Subspe-

zies *C. natalensis egregior* nicht, wie gegenwärtig angenommen, eine im Küstengebiet von Moçambique brütende Rasse, sondern dort nur Wintergast ist, der im Küstengebiet der östlichen Kapprovinz und der Süd-Transkei zur Brut schreitet. Das Verbreitungsgebiet außerhalb der Brutzeit umfaßt demgegenüber, wie sich jetzt ergibt, auch die Küstenregion von Natal und Zululand.

Die vorliegende Untersuchung bestätigt ferner, daß Hall & Moreau im Recht waren, wenn sie *C. dichroa* und *C. natalensis* in „An Atlas of Speciation in African Passerine Birds" (1970, Karte 150) als nahe verwandte Arten behandelten. Es wurde jetzt festgestellt, daß dort, wo die Verbreitungsgebiete der beiden *Cossypha* -Arten durch topographische und ökologische Verhältnisse eng zusammengedrängt werden, ein gewisses Maß von Hybridisierung vorkommt: es sind vier Mischlinge aus Pondoland (Transkei) und aus der Gegend von East London (Kapprovinz) bekannt. Desungeachtet wird empfohlen, *C. dichroa* und *C. natalensis* als getrennte Arten zu behandeln, da es nach den vorliegenden Daten keinen Beweis dafür gibt, daß sie auch anderswo hybridisieren.

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